CATS NEWSLETTER

CAPITOL AREA TIMEX/SINCLAIR USERS GROUP

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* * * CONTENTS * * *

Editor's Notes.....1
Products and Supplies.....2
Pole Position Review.....3
1000 Library List.....4
On Taping.....5
Closest Approach Problem..6
Book Review.....7
Mandelbrot Returns!.....9
Moire Patterns.....10

Editor's Notes

The January Meeting

The January meeting was another busy (tumultuous?) convocation. Tom Bent's hardware meeting, at 11:00 AM, drew an enormous number of elves, working on a variety of projects. The spirit of helping your neighbor was doing well. In the regular meeting, Jules covered recent Sinclairese developments, I ran a q & a session on computer basics, and John demonstrated the Graphics capacity of Omnicalc.

For the first time, more than 10 people at a time could see what was happening on that itty bitty screen, as Stan Guttenberg came up with a splitter cable that will allow us to drive up to four monitors or TVs from one computer - thanks, Stan!

The March Meeting

For the first time in a year, we will not be able to use the Greenbelt Library for our meeting. A location has not been secured. If you know of one, let us know.

Whither the User Group?

Others have trod this dangerous ground, and returned, muddy, but unbowed. Here's my thought:

Our home computers bear the same relation to everyday life that the automobile did in 1905. While they offer unquestioned performance for some tasks, they require too much special attention to be easily integrated into the average person's everyday routine.

In 1905, local Automobile Associations sprang up, uniting devotees of the new technology, and allowing communication and a sense of community. The character of these groups was determined by the need to master the complex operations needed to get the darn things moving. As the technology matured, the impact of the auto became more and more pervasive at the same time that it required less and less expertise to operate. The average owner no longer needed a "users group" before he could operate his machine - as a result, the character of these Associations changed.

On the one hand, some groups moved from an individual focus (how to start the thing, the best emergency repair of a wheel spindle) to an institutional focus (promoting construction of roads, shared risk insurance). The archtype of this is the American Automobile Association.

On the other hand, some other groups continued their individual focus. These groups are typified by the MG Sports car club, or the Sports Car Club of America.

A similar change is taking place in home computers; in fact, I'll bet that our machines show as much of the potential of the idea as the automobiles of 1905. Likewise, I expect to see a dramatic lessening of the need for a user group for the average user. In the end, there will be two classes of "User Group": the broad protective society type, spanning all machines and promoting the general interests of computerists, and the hobby type, often focusing on one make.

I hope that CATS will become a prototype for the hobby type user group of the year 2047. We share a lot with the like of the MG clubs: an elderly, anachronistic machine, sharply divorced from the pressures, confusion, and hype of the mass market; an appreciation of all that our machines can do; an enjoyment of the special elegance that was imparted to our machine when the designer originated it; and, most of all, a sense of a community of people embarked on a common quest - to learn and master the principles of the technology.

Mark Fisher

Products and Supplies

2040 printer power supplies (their cat. #K3452-114; $8.95) are available from: Edlie Electronics, 2700 Hempstead Tpk., Leavitton, NY 11756 (800) 645-4722 ($25 min; catalog is free). Ed Gallagher reports that plugging printer power into 2068 blows power supply, not computer. Hmmm...

Jack Dohaney, 325 O'Connor St., Menlo Park CA 94025, has just completed MSCRIPT V5 as an upgrade for your stock MSCRIPT program. It is available as freeware: if you get it from another source, and you use it, send him $5.00. If you would like to get a copy from him, send Jack $10.00 for postage & media, and confirm that you have purchased a genuine copy of MSCRIPT, and he'll send you a copy. AVAILABLE FOR DISC OR TAPE

A Canadian TSUG reports that there is a RF hot spot on the left side of the 2068 (near the modulator). If you're having trouble with consistent SAVEs, try moving the tape to the right side.

From TSUG Las Vegas: To delete line #'s on long 2068 program lines, put a quote mark in front. Rest of line, including colons, is treated as string data. They also suggest using a poker chip to pad out the short roll of Radio Shack paper. Hmmm.... Well, whatever's at hand, I guess.

From Sinc-Times, news that John Oliger Co., 11601 Whidbey, Cumberland IN 46229 has produced a print driver for the AERCO Cent. I/F. Why get it? It loads below BASIC programming area, and is compatible with a variety of printers, as well as double display files. $6.95, with documentation.

Comlink I is an RS-232 I/F for the TS1000. Includes terminal software in EPROM, and Case! Andy Eckhardt, 918 Anna St., Boalsburg, PA 16827

The Dam has burst! Tested 2050 MODEMs, no case, no power supply, no software; $25.00! A quick group buy of these has already been delivered: boards used so far have worked fine. Available from Glen D. Clifford, 13910 Halladale Ave., Gardena CA 90249 (213) 516-6648
(And a rumor of untested boards from Zebra for $7.95)

TOM COVER of Laurel has some news to report about obtaining high quality printers.

He says that PRINTERS PLUS of Alexandria (370-7810) has a full array of top-quality printers (roughly $400 to $2000 and up) which they will sell to user group members for 1/3 off.

Call TOM for more details: 953-1575.

Dear Editor:

Since acquiring a new IBM PC, I have used my Timex-Sinclair 1000 very little. Nonetheless, I am renewing my membership for another year to support CATS and its newsletter. Hats off to those who make the newsletter possible.

I have not attended a meeting in quite some time, but now that I am finally finishing my degree course work I may be able to contribute more.

I am very pleased to read in the newsletter about the various SIG's, particularly the machine code SIG. Has anyone used Toni Baker's Mastering Machine Code on Your ZX81? I am interested in comparing notes with anyone who may have attempted to write a machine code disassembler using the author's algorithm. I successfully wrote such a program some time ago at the expense of my schoolwork. If there is any interest, I may attempt to print up the listing and documentation. I hope my information may help someone to "translate" the disassembler for use on the 2068, since both the 1000 and the 2068 use the Z80 microprocessor.

Another area of my interest is that of computer chess. I am very curious as to the concepts and algorithms that are necessary to program a computer to play chess. Has anyone read anything that discusses how this is done? I have pondered the possibility of using the disassembler to analyze the Timex Chess software, but I am sure this would be very difficult. If I attain this goal, I may consider trying to translate the program for use with the 8088 microprocessor used by the IBM PC. I would like to hear from anyone who has any comments or suggestions.

Best wishes in the new year!

Very truly yours,

Rick White

Richard A. White, Jr.
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An all-member issue! Thanks

N/L Deadline.....	Meeting Date
	February 8
February 14	March 8
March 14	April 12

Electronics Group Still Going Strong

by C.H. (Hank) Dickson

The results of an extensive personal investigation indicate the happy news that, under the guidance of TOM BENT and MARK FISHER, the CATS hardware interest group is alive and flourishing!

It comes to life at 11 a.m. in the bowels of the New Carrollton library on the Saturday mornings when the monthly 2 p.m. CATS meetings occur.

At the January session, an incredible assortment of parts, wires, testing equipment, computers, boards and humanity were congregated in the small conference room adjoining the main meeting hall. They stayed for three hours-plus worth of high-spirited soldering, testing, joking, and helpful idea-sharing.

Assembling various kinds of "Oliger" boards is a popular past-time. One project I observed was assembling a "double" RS-232 serial interface card which has two RS-232 sockets so a modem and printer can be connected at the same time to a Sinclair/Timex. I'm going to start putting one together myself next time.

TOM and MARK put together an optimum "wish list" of equipment for a Sinclair hobbiest which appeared earlier in CATS (see below).

From what I observed, the following were actually the most-used items:

good soldering iron, WITH holder/cleaner; really small pliers; tiny cutters for nipping wires; lamp; magnifying glass; extension cord.

NOTE: Some of the fabulous and hard-to-find 63/37 electronics solder will be available to use at the next CATS hardware session. Plan now to be there: 11 a.m., Saturday, February 8!

OOOOOOPsssss!!

Sorry, Jerry; I know that the dual RS-232 I/F is an AERCO product, not Oliger. In the heat of the "pit," with smoking rosin all around, these things get confused. Ed.

REUNION WITH AN OLD FLAME

A. Pollock, Washington, D.C. 20016

PROGRAM: ATARI'S POLE POSITION
MACHINE: TS 2068/w Spectrum ROM
PRICE: $10 (in the UK)

I am not a computer game player. I own a few and have tried many more. In the early 80's when I frequented video arcades, there wasn't a lot to stir the little boy inside this professional--except for one straightforward, and exciting game--POLE POSITION !--The race car arcade game that was made for "all of your friend's machines," but not the TS2068...until now.

As Pong was the great grandfather to electronic games and Space Invaders was the father to the video arcade, so it was Pole Position became the first superstar of the video explosion.

Obviously for our 48K'er there was not enough room to put all the bells and whistles from the arcade. But they sure put enough for this veteran "race driver"--and a joystick option to boot.

With a romswitch, and the new Kempston joystick emulator (see review C.A.T.S. July '85), all you need is your helmet and gloves to dance with this old squeeze.

What a classic!

This idea goes back to the amusement park and pinball centers of yesteryear. Remember, before Univac, when you would be looking for the skee ball, and on the side wall would be these machines with a big steering wheel on the front? Through a window you would see a metal car suspended over a drum with a picture of a two-lane roadway pasted around it.

After dropping the money in the slot, the drum would rotate and you would rack up as many points as you could by staying on your side the road and not hitting anything.

It was always fun, crowded and played by the whole family.

The premise of Pole Position for the spectrumized 2068 is still the same. You have to qualify fast enough to start in one of the eight grid positions. With the premier English Chequered Flag, you are in the car, alone on the track just trying to make it around the twist and turns. In Pole Position you see the whole car in front of you and have to qualify it with other cars racing on the track as well as other obstacles."Look out for that billboard!"

Obviously you want to qualify fast enough to earn the best starting slot--the pole position and you can only race if you qualify. The faster you go with out a firey crash the more bonus time you aquire to keep racing.

After a hard day into machine code, this is a fun way to loosen up the kinks and it's pure Walter Mitty Land.

Welcome home old friend.

==========

This was written with 8201 Lapword and printed with a Star PowerType.

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FOR SALE - Timex Sinclair 1000, 16K RAM Module, Books, Magazines (Sync-1983, 1984 and SQ-1983). $35.00 Call (evenings) 460-5796, ask for Howard Berman.

CRYPTOGRAM Solution:

"I'D CHOOSE A GOOD, USER FRIENDLY COMPUTER PROGRAM OVER A WEEK IN HAWAII IN FEBRUARY," SAYS BEVERLY, THE HAWAIIAN HACKER.

TAPE NURSING

Jim MacKenzie

The following is a list of the CATS TS1000 library. B stands for bytes, and SS is syncsum.

201 Side A

'1' MONEY GRABBER 2:16 4721 B SS 129
Fast moving maze game.

BAR CHART' 3:35 7737 B SS 129
Vertical.

'3' RANDOM WALKS 1:32 2930 B SS 120
Lengthy but good graphics demo.

'4' STATISTICAL TESTS 2:05 4212 B
SS 167 Five tests.

201 Side B

'1' ZX STOCK EXCHANGE 3:15 6826 B
176 Game.

'2' VIGENERE CIPHER 0:58 1514 B SS 16
One letter keyword.

'NAV FIX' 4:38 10309 B SS 156
Fixed point boat navigation.

202 Side A

'CRABOS' 0:46 1043 B SS 4
Two players fight for territory.

'CRYPTOPAD' 0:37 676 B SS 65
Elementary alpha cipher.

'SHOPPER' 5:59 13776 B SS 161
Excellent grocery list.

202 Side B

'5' GOLF COURSE 6:01 13933 B SS 127
Excellent game.

'6' QUACK 0:37 1411 B SS 87
Excellent push and fire game.

'7' MTGE LOAN 2458 B SS 202
Excellent.

203 Side A

'1' DUCK SHOOT 1:09 2040 B SS 199
Shoot by degrees of angle.

'2' DRIVER 0:40 837 B SS 219
Game.

'3' DEFUSE 0:45 1051 B SS 168
Mastermind game.

'4' SPIDER 3:48 8363 B SS 142
Three part maze.

'5' POWERS OF TWO 0:47 1078 B SS 27
Fill the screen in a few hours.

'6' TOWERS OF HANOI 1:09 1991 B
SS 49 Demo, 3 spindles + stacked rings.

'7' CENTROPOID 0:44 1076 B SS 27
Excellent maze.

203 Side B

'1' SMAUG'S LAIR 3:51 8616 B SS 2
Shoot by angle.

'2' ZX MAZE 1:10 2017 B SS 42
Game.

'3' BINARY CHARACTER BUILDER 1:10
2018 B SS 219 Build 8X8 graphic char

'4' CALENDAR 1:07 1874 B SS 183
1753 - 2199

'6' MEXLD3 1:02 1707 B SS 193
MC Editor.

204 Side A

'FLATMAN' 1:27 2780 B SS 157
Excellent maze.

'2' BILLBOARD 0:28 338 B SS 157
Scrolling message

'SMAUG' 6:28 14536 B SS 157
Adventure with maze.

204 Side B

'POLY' 0:48 1002 B SS 39
MC construction of a polygram.

'2' HAMMURABI 0:59 1494 B SS 39
Quartermaster for a year, excellent.

'TORPS' 0:43 940 B 150 SS
Press and fire.

'4' ORBT 0:48 1123 B SS 248
Lunar lander game.

'5' SPACE 0:53 1381 B SS 74
Star trek game.

'6' MATH 0:33 532 B SS 207
Arithmetic quiz.

'PRISM' 0:43 993 B SS 207
Fine 3-D polygram graphic.

'8' CAVE 0:48 1140 B SS 124
Good maze.

'9' RACE 0:43 930 B SS 27
Game.

205 Side A

'BOMB' 0:49 1209 B SS 64
Excellent push and fire.

'NINE' 0:39 760 B SS 203
Excellent maze.

'ALIAN' 4:21 6685 B SS 83
Verbal adventure game.

'STAR' 2:07 4279 B SS 102
Excellent shooting spaceship's game.

'BREAKOUT' 0:30 401 B SS 255
Good version of pong.

'1' MEMORY DISPLAY 0:40 826 B SS 74
Display's program size, SS, etc.

205 Side B

'PUZZLE' 1:37 3132 B 55 229
Word search

'FOUR' 1:52 3710 B 55 147
Good modified tic tac toe.

'BJ' 3:17 7153 B 55 17
Blackjack.

'FLIP' 1:29 2780 B 55 170
Excellent game.

'1' TAPE LABEL 0:57 1561 B 55 73
Prints cassette index labels on TS 2040.

206 Side A

'1' PERIL 6:09
Sailing adventure with display

'2' F P DEMO
By Ian Logan.

'3' SHIFT ROTATE DEM 3:26
Excellent.

Which tape should you buy? You don't want a hi bias tape, because you aren't using a hi bias machine. I personally try to buy the best quality cassettes. The type technically called TYPE I is a ferric (FE) tape sometimes called LN (low noise), standard, or normal. There are two things to look for in a tape: tape construction quality which you can tell from listening, or reading test reports, and what is called mechanism which is how well the tape actually winds. I judge this from the smoothness of the cassette when rewinding. I never use tapes longer than sixty minutes because they stretch.

So you want some brand names.-Radio Shack makes a twenty minute deluxe cassette for 3.79. I use them for the library tapes, and really like them. For my sixty minute tapes I'm presently trying to find a place that sells Sony HF-S. The other top brands (Fuji, TDK, Maxell, etc.) are just as good I'm sure.

Tape recorders are as diverse as the tape brands. Again I would prefer the Radio Shack computer cassette recorder. Aside from it's good reputation, it will perform a direct dubbing from one recorder to another without the computer. I use a G.E. computer recorder and have had no problems in a year and a half of heavy usage. One of our members told me that he tested the G.E. and the Emerson model (slightly cheaper than the G.E.) and found the Emerson had high signal output, but poor playing and rewinding mechanism (it doesn't always work). The opposite for G.E.

I would also like to point out that the best chance of making a good tape is to use the same recorder to save and load. This is why you may have experienced problems loading borrowed or commercial tapes. The physical alignment of the tape head is unique to your recorder, all recorders have a small screw on the head to adjust this. Do not touch it unless you know what you're doing.

Loading devices are also nice. I spliced an LED and a diode into one of my connector cords, it's very useful. I also have a cord with a small earphone spliced into it. I never use it because the earphone only has about five inches of wire on it. The Winky Board is excellent because it filters and amplifies the signal. One more thing, if you lengthen the cord or have a bad connection, not to mention adding earphones or LED's this will cause some weakening of the signal. There is also the problem of positioning your recorder, computer, and TV so they're not too close. The recorder should be a foot and a half away. Other problems have been caused by plugging the recorder and computer into the same electrical outlet, or having the plug in the outlet upside down (experiment).

Finally I would like to point out that dust is everywhere, so I keep my recorder and computer covered. Clean the tape head after every four hours of usage, and occassionally the plug jacks and tips. Radio Shack has cleaning supplies too.

And finally I have a summary of much that I have learned about taping prog's.

First and always remember that we are looking at an audio recorder playback system that sends electrical pulses to a tape from a computer, and vice versa. There are four transfers occuring:
Magnetic tape to recorder read/write head.
Head to computer tape cord (port).
Computer port to computer ROM'S software.
Finally the computer's memory.

Now, the tape IS where it's at! If your tape has a, Heaven forbid finger touch, spilled liquid, spec of dust or smoke OR a voltage drop due to pevious prog's not erased, a brand new unerased tape, a poor quality tape or whatever. Good luck! So first don't leave a tape in the recorder after you've loaded a prog. Remove the tape, put it back into the box, and put the box in a dustproof lightproof case (a plastic bag will do), and keep the bag away from heat and sun. Also keep the tapes away from magnetic fields, TV's, magnets etc. Finally try not to allow the tape to take any hard knocks, this can also disrupt the magnetic lines on the tape.

I think you'll agree that the CATS library is rather large and diverse. It's all due to the hard work and generous loans of a lot of club members. We all owe these people a handy thanks.

I'm sorry about the time lag for last month's column. I'll be more careful in the future. If anyone is interested in loaning a program, or helping in any way, contact Mark or myself:

Mark Fisher 301-589-7407

Jim MacKenzie 301-495-9139 After 7 pm

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CLOSEST APPROACH PROBLEM

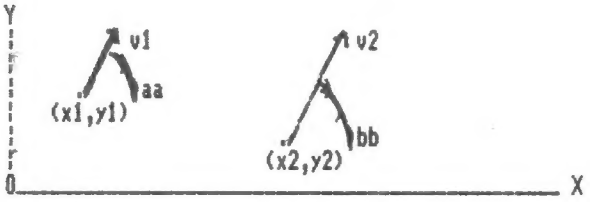
by Murray Barasch

I posed a problem in the November newsletter. It asked how to determine the closest approach of two points, each travelling in a straight line. Mihaly Grell and Murray Barasch have submitted solutions. Mihaly's solution is for the three- dimensional case, and is in the form of a Pascal program which few members could directly apply, while Murray's is explained in English (remember that language?). MF

It is possible to mathematically describe the distance between two points. This is commonly known as the Pythagorean theorem. Thanks to Newton and the calculus, it as also possible to describe the change in distance between two points through time.

If the points are approaching each other initially, they will pass through a closest approach configuration and afterwards begin to recede from each other - the change in distance (relative velocity) will change from - (closing up) to + (opening larger), going through the value of zero at the point of closest approach. By using calculus, we can determine the time of this approach:

For the first point, let its initial position be defined by coordinates (x1,y1). Its speed will be v1, at an angle aa.



Similarly, for the second point we have x2, y2, v2, and angle bb.

In that case, we can show the coordinates of the first point after an elapsed time t:

(1) $x1(t)=x1+t*v1 \cos aa$

(2) $y1(t)=y1+t*v1 \sin aa$

and for the second point:

(3) $x2(t)=x2+t*v2 \cos bb$

(4) $y2(t)=y2+t*v2 \sin bb$

Now the distance (D) between the points is given as:

(5) $D^2(t)=(x2(t)-x1(t))^2 + (y2(t)-y1(t))^2$

Now, we know that the derivative of D^2 is:

(6) $\frac{d}{dt}(D^2) = 2D \frac{d}{dt} D$

And, by definition, D will be either positive or zero (and we don't need to take the SQR of eq. (6)). (D will be zero only if the points "collide")

So, let us set the derivative of D^2 at zero, and see what happens. From eq.'s (1), (2), (3), (4), and (5), we have:

(7) $D^2(t)=[x2-x1+t*(v2 \cos bb - v1 \cos aa)]^2 + [y2-y1+t*(v2 \sin bb - v1 \sin aa)]^2$

Then the derivative of eq. (7) is:

(8) $\frac{d}{dy} D^2 = 2[x2-x1+t*(v2 \cos bb - v1 \cos aa)] * [v2 \cos bb - v1 \cos aa] + 2[y2-y1+t*(v2 \sin bb - v1 \sin aa)] * [v2 \sin bb - v1 \sin aa]$

and setting this equal to zero, we first write

(9) $[(x2-x1)(v2 \cos bb - v1 \cos aa) + (y2-y1)(v2 \sin bb - v1 \sin aa)] + t*[(v2 \cos bb - v1 \cos aa)^2 + (v2 \sin bb - v1 \sin aa)^2] = 0$

Simplifying the coefficient of t (using $\sin^2 + \cos^2 =1$), we get next:

(10) $[(x2-x1)(v2 \cos bb - v1 \cos aa) + (y2-y1)(v2 \sin bb - v1 \sin aa)] + t*[v1^2 + v2^2 - 2 * v1 * v2 * (\cos aa \cos bb + \sin aa \sin bb)] = 0$

But the coefficient of v1 * v2 is just 2 * COS (bb-aa), a simpler form. So finally, the general solution comes from:

(11) $[(x2-x1)(v2 \cos bb - v1 \cos aa) + (y2-y1)(v2 \sin bb - v1 \sin aa)] + t*[v1^2 + v2^2 - 2 * v1 * v2 * \cos (bb-aa)] = 0$

In other words, the point of closest approach occurs after a time t given by:

(12) $t=-[(x2-x1)(v2 \cos bb - v1 \cos aa) + (y2-y1)(v2 \sin bb - v1 \sin aa)] / [v1^2 + v2^2 - 2 * v1 * v2 * \cos (bb-aa)]$
(note- 1st 2 lines divided by 3rd)

If the parameters yield a positive value for t, the points are moving towards closest approach; if they yield a negative value for t, they have already passed closest approach and are moving away from each other.

To find the point of closest approach, substitute the value of t from eq. (12) into (1), (2), (3), and (4).

In applying the above to an actual program, where the two objects travel along line segments defined by their end points, the values of COS and SIN can be computed by the following equation. Assuming the line segment starts at (XS1, YS1), and ends at (XS2, YS2):

$$(13) \quad COS\ aa = \frac{(XS2-XS1)}{SQR[(XS2-XS1)^2 + (YS2-YS1)^2]}$$

$$(14) \quad SIN\ aa = \frac{(YS2-YS1)}{SQR[(YS2-YS1)^2 + (XS2-XS1)^2]}$$

In converting equation (12) to Sinclair BASIC, problems arise in establishing the value of the angles aa and bb. Since eq. (10) uses only SIN and COS, it may be easier to find t using that form of the equation:

```
(15)    t = -[(x2-x1)(v2 COS bb - v1 COS aa) +
            (y2-y1)(v2 SIN bb - v1 SIN aa)] /
            [v1² + v2² - 2 * v1 * v2 *
            (COS aa COS bb + SIN aa SIN bb)]
```

CONSUMATUM EST, DEO GRATIAS
(UGH!)

Ed note: Murray never thought that what he had written would be published, but I felt that the effort he went to should be recognized, and, further, that his effort could help other programmers.

To see this algorithm in action, try "Spacewar" on the latest club library tape.

M/C For the 1000

Brian Little

MOVE (16 bytes)

This routine permits you to move a block of MC above RAMTOP. You must do a NEW after this routine is used.

dd=low byte ee=hi byte

```
21 dd ee    LD HL, address
22 04 40    LD (4004),HL
EB          EX DE,HL
21 dd ee    LD HL,start of MC to
                be moved
01 dd ee    LD BC,length
C9          RET
```

Unclassified

FOR SALE: T/S 2068; $70.00 p.p., also 2040 printer. Call Ed Gallagher, 15 Barney Rd, Towaco NJ 07082 (201) 335-0273

Book Review

The Sinclair Story
Rodney Dale, Duckworth, 1985

This book is an excellent biography of Sir Clive Sinclair. Avoiding college, at 18 he developed and sold miniature electronic kits through the mail. He also ran a magazine called Practical Wireless. A publisher soon lured him away from that and had him writing books on Radio and transistors. This was from 1959 to 1963.

In 1963 he formed Sinclair Radionics, a firm which produced a microamplifier, "the smallest radio set in the world," and a hi fi. Business boomed. Many of the products were in kit form; some other products were a multimeter, digital watches, and calculators. When desktop computers were introduced, he began the development of the famous ZX80. This was soon followed by the ZX81 and ZX82 (the Spectrum). The book also covers the development of the Quantum Leap.

The author also covers the development of the miniature TV and the electric car [sic]. The book is well written and has numerous pictures. It gives an excellent ovierview of Clive Sinclair.

It is available from Curry Computer, Glendale AZ 602-978-2902: $14.95

Reviewed by Harry Harrison

Sinclair Research Seeks $22M Funds

LONDON (FNS) — Sinclair Research Ltd., the home computer maker, said it is seeking additional financing of $22.2 million to $29.6 million for R&D work on two new computers.

Approximately $14.8 million to $22.2 million of the money would be used to fund a new flat-screen protable as well as a new version of Sinclair's QL computer next year.

The remainder of the capital is being sought from a group of venture capital companies for Sinclair's $54 million wafer-scale integration venture. When the plan was disclosed in March, Sinclair said it would own 51 per cent of the new company.

Sir Clive Sinclair, the firm's chairman, said the initial funding for the venture should be in place by the end of December.

Sinclair revealed its plans to raise additional funding as it reported after-tax losses of $16.38 million on a 32.4 per cent increase in sales to $152.24 million for the year ended March 31 compared with a profitable previous year.

Sinclair's results were hit by a $25.86 million writedown of its hardware, software and component inventories, which totaled $31.57 million at the end of the year, an increase of 56.6 per cent. Unsold computers totaled $29.39 million at year-end, up 176 per cent from the previous year.

Despite the losses, Sir Clive said his company has fared well this year compared with competitors, increasing its share of the U.K. home computer market to about 50 per cent.

Earlier this year Sinclair encountered cash-flow problems and had to seek external financing.

art. contrib. by H. Harrison (Wash. Post?)

SyncWare News

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Dear Fellow Timex Computer Enthusiast,

For the past 2 years, SYNCWARE NEWS has devoted itself to providing some of the meatiest subject matter you can find anywhere about ZX/TS computers. Now, with its third volume just beginning, we would like to invite you to subscribe to our journal.

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Even though Timex has quit the computer scene, SYNCWARE NEWS has discovered that there's still a tremendous following for our little computers. We are a forum for this wide diverse interest. We help bring it all together. Won't you please join us? We're sure you'll be very pleased.

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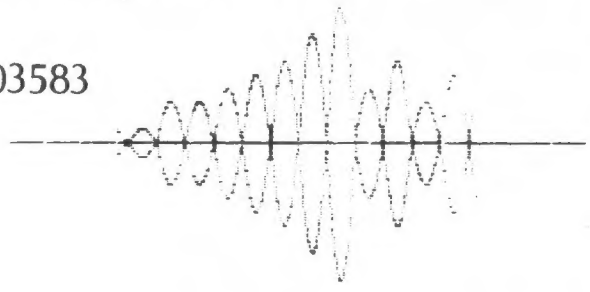

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Science FAIRS COMING

DAVID KULP, a CATS member from Annandale, VA, announced at the January CATS meeting that he is using his T/S 2068 for his upcoming science fair project which will involve acoustics.

He asked if anyone in the group could spare a T/S 2040 printer for the duration of his project.

Happily enough, DAVID left with assurances of the use of three 2040 printers, plus paper, should he so desire.

CATS has always strongly supported student science fair activities (cf. CATS, June & July, 1985), and will definitely continue doing so.

DAVID stayed around to help JOHN CONGER by manipulating the keyboard during John's demonstration of one of the Spectrum spread-sheet programs.

If any members would like to offer hardware of software advice or consultation on acoustical research to DAVID, he can be reached at home at: 978-9078.

David, incidentally, is currently a junior at W. T. Woodson high school in Fairfax County, VA.

MANDELBROTS RETURN!

John Sampson

Since getting started with the CATS Hi-Res Mandelbrot program for the 1000 (December '85), I eliminated the bug in your program by eliminating line 520. As you can see by the enclosed photo- copies, we have run quite a few tests and have been getting pretty good print-outs.

The number in the upper right corner of each print-out is the number of iterations used. You will notice that using the using the same coordinates for each run, and changing the number of iterations causes the print-out to go right through the focus scale, similar to the depth of field of a camera.

It is too bad I lack the knowledge to convert your program into m/c, as it would surely speed things up quite a bit. Perhaps one or more of your members or readers could come up with something. I find the examination of the Mandelbrot set fascinating.

In closing, let me say thank you for a very fine Mandelbrot program for the 1000. We need more good programs for the ZX81 and TS1000 machines. If I can be of any assistance to you, let me know.

John A. Sampson

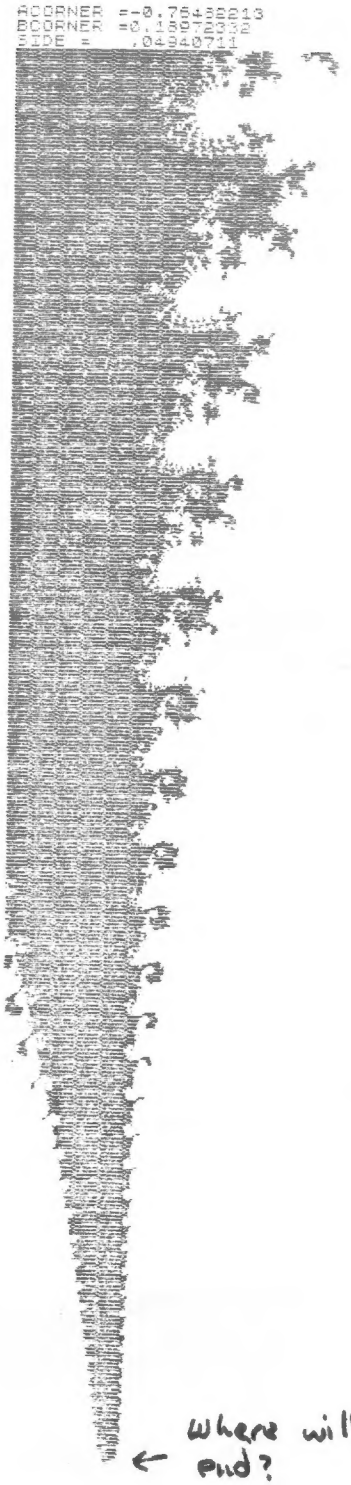
Ed. notes:

Line 520 is the culprit, huh? Hmm.... Perhaps more than 64K repeated uses of RND causes the 1000 to crash. Replacing it with 95 GOTO 500 and 520 IF K)50 OR K(1000 THEN GOTO 590 would place two contour levels: more could be plotted by changing line 520.

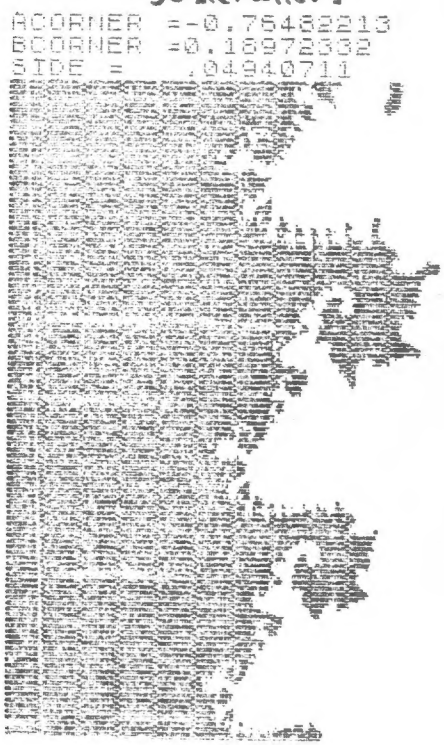
In reference to John's idea of a changing focus accounting for the differences: Another way to think of the changes is as successive contour lines on a topographic map. The boundary shown by the 1000 iteration sample is the "true" boundary, but channels shown in the lesser iterations show where infinitesimal filaments of the set wander.

Speed could perhaps be increased 20% using m/c; most of the time is lost in the floating point calculations, which are no faster in m/c.

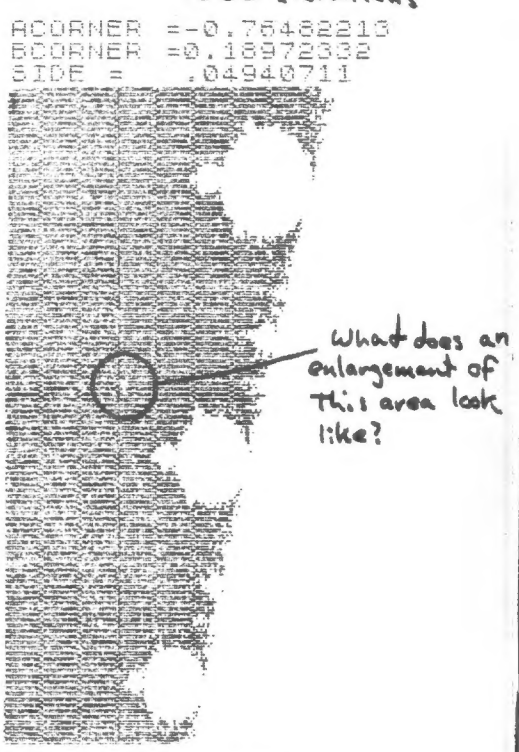
Finally, let me, in turn, thank both Mihaly Grell for thinking up the hi-res routine I took advantage of, and John Sampson, for developing the plot further. MF



50 Iterations



1000 Iterations



CRYPTOGRAM:

"O'K LIMMYN S EMMK, PYND

GDONHKBR LMZXPCND XDMEDSZ

MUND S TNNA OH ISTSOO OH

GNFDPSDR," YSRY FNUNDBR,

CIN ISTSOOSH ISLAND.

MOIRE PATTERNS

The 2068 manual explains that the OVER 1 instruction causes an "exclusive or" to be formed if one character prints on top of another on the screen. This means that the printed image will toggle back and forth from ink to background each time a pixel is hit. The following set of programs utilizes the OVER instruction to create interference patterns similar to moire patterns.

This interesting effect occurs when two sets of lines (or threads) are printed (or woven) in such a way as to produce a periodic interference. The effect was first used by French silk weavers to produce beautifully patterned cloth. The codes below create patterns by having overlapping lines interfere in a regular manner.

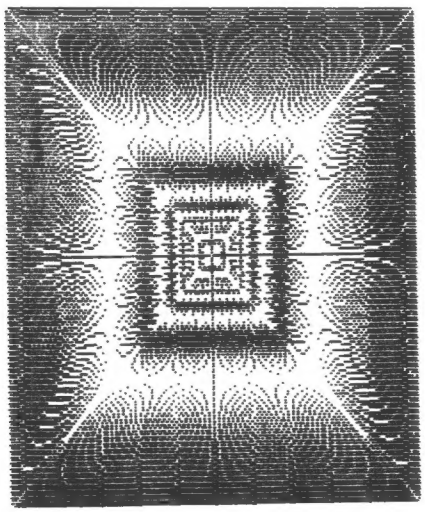
The first code was taken from another newsletter. It chooses a random number between 1 and 9 and creates an image. The smaller r is, the more interference. In the second code we see the effect of superimposing a radial pattern and a square. Choosing different values for m will produce different patterns. The image shown was produced with m=.02 .

The next code shows the effect of superimposing a fan and a square, and the final code shows the effect of superimposing two sets of circles with centers offset.

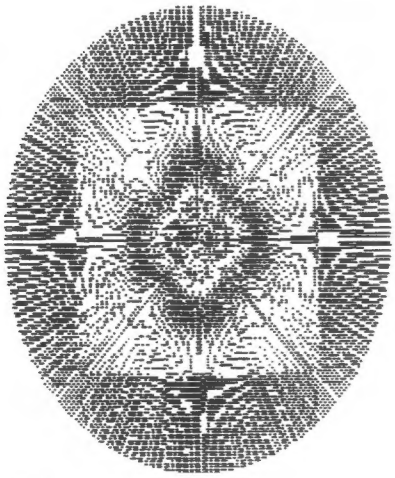
In all these codes it is intructive to run the code first without the OVER instruction. If you take the instruction out once the code is run it will have no effect.

R. A. Schrack

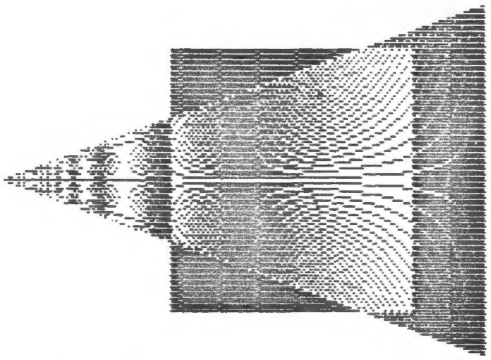
1



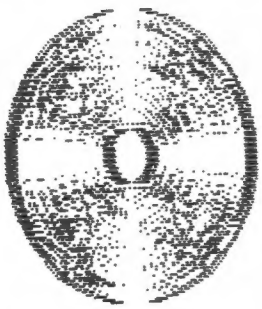
```
10 OVER 1
14 LET r=INT (RND*9)+1
15 PRINT r
20 FOR s=-84 TO 84 STEP r
26 PLOT 127,87: DRAW s,85
27 PLOT 127,87: DRAW 85,s
28 PLOT 127,87: DRAW -85,s
29 PLOT 127,87: DRAW s,-85
30 NEXT s
40 PAUSE 100: CLS : GO TO 10
```



```
 1 LET m=.1
 5 OVER 1
10 FOR n=45 TO 135
20 PLOT 75,n
30 DRAW 100,0
40 NEXT n
50 FOR n=0 TO 2*PI STEP m
55 PLOT 125,90
60 DRAW 80*SIN n,80*COS n
80 NEXT n
```



```
 5 OVER 1
10 FOR n=45 TO 135
20 PLOT 75,n
30 DRAW 100,0
40 NEXT n
50 FOR n=-60 TO 60
60 PLOT 5,90
70 DRAW 200,(n)
80 NEXT n
```



```
 2 OVER 1
 5 LET n=1
10 FOR i=10 TO 80 STEP n
20 CIRCLE 125,90,i
50 CIRCLE 140,90,i
60 NEXT i
```

32K BANKED MEMORY

Plugs into the TS2068 cartridge slot. This 32K ram is much more than just a memory. An on board battery keeps it alive even when you turn the computer off. Switch selectable for use in the DOCK or EXROM banks with NO mods to the computer. Write protect switch lets you use memory like an EPROM. Run your own plug-in BASIC programs! Extend capacity by 32K. Reduce or eliminate tape loading time. Detailed instructions include utilities for bank switching and data transfers. The perfect tool for extending your 2068's memory or for writing and debugging EPROM software. A beautiful board: solder masked, gold tipped, satellite grade anti-static coating. Very dependable and rugged. Battery included. Only $109.95

EXTENDED BASIC

22 new commands for your TS1000! Advanced screen utilities make your ZX81 look more like a monochrome 2068. Includes READ, DATA, RESTORE, FILL MOVE, LEFT$, MID$, RIGHT$. IN and OUT commands give you Basic control of I/O mapped peripherals which were previously accessed only in machine code. Extended Basic does not require the use of PEEK, POKE, or USR. Takes up just 3.5K of memory. 24 page manual, sample listings included. Unbelievable speed, excellent documentation. NO USR CALLS!! Only $19.95

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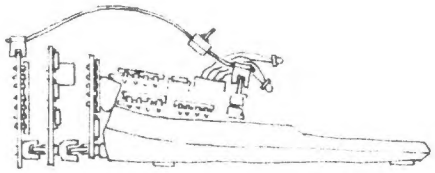
- Pseudoscope for TS2068--A serial bit stream analyzer which mimics the action of an oscilloscope. Use to graphically portray low frequency digital signals in a horizontally scrolling graph. Program lets you store and compare samples. Print them out on a 2040 printer. Adjustable sample rate, 60hz timing dots are plotted with your input sample. Pseudoscope lets you SEE morse, rtty, serial keyboard signals, etc. as the computer sees them. Very useful in program development or in optimizing interface hardware. Tape/instruction book/full disassembly: $16.95
- Computer I/O Data Communications--Lets your 2068 speak to your ZX81! Use your TS1000 (must have 64K ram) to store data for your 2068. Send commands which transfer data back and forth, or cause the TS1000 to execute your own special Basic commands. Now 2068 owners can put their old 1000's back on line. Software includes operating systems for both computers. Requires 2 port boards (one for each computer). Tape/instructions: $16.95.



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Bladensburg, MD 20710

CATS is a non-profit special interest organization dedicated to serving the interests of those who own, use, or are interested in learning more about the Timex/Sinclair family of personal computers.

The official contact person for CATS is JULES GESANG:

301*922-0767

Meetings are held on the second Saturday of each month at 2 P.M. in the large meeting room of the New Carrollton Branch Public Library.

Ham Radio Network Information
QZX Net...Wednesdays, 9p.m. local time; 14.345 MHz NU4F NCS
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